UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,949	05/29/2001	Paul Docherty	028762.000066	4969

7590 05/10/2004

Jackson Walker LLP
1401 McKinney Street Suite 1900
Houston, TX 77010

EXAMINER	
WALLACE, SCOTT A	

ART UNIT	PAPER NUMBER
2671	9

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/866,949	Applicant(s) DOCHERTY, PAUL	
	Examiner Scott Wallace	Art Unit 2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 5-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margrave et al. (The theoretical basis for prestack migration by equivalent offset) in view of Etgen, U.S. Patent No. 6,049,759 in view of Clapp et al. (AVS as a 3-D seismic data visualizing platform).

4. As per claim 1, Margrave et al discloses a method for viewing seismic data (fig 2, pg 23-3) comprising: generating a prestack seismic display having a plurality of CMP gathers (fig 3 and pg 23-6, 4th and 5th paragraphs), wherein each gather has constant spatial coordinates associated therewith (pg 23-6, 5th paragraph); for each CMP gather, defining a time window around seismic data of interest (fig 2); plotting said window in plan view using the spatial coordinates associated with said window to generate a multidimensional plan view (fig 2D). However, Margrave et al does not specifically disclose defining a depth window. This is disclosed in Etgen in fig 8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to plot seismic data in a depth window because this gives explorationist information about the subsurface which allows them to make choices for drilling etc.. Also Margrave et al does not disclose wherein said multidimensional plan view utilizes at least four dimensions. This is disclosed in Clapp et al on page 2, 2nd paragraph. It would have been obvious to one of ordinary skill in the art at the time the invention was made display the prestack data in four dimensions

because this adds dynamics to the visualization which makes for a more natural representation of the prestack data.

5. As per claim 5, Margrave et al discloses a method for viewing seismic data (fig 2, pg 23-3) related to a lithologic structure comprising: generating a poststack seismic display having a plurality of poststack traces around a point of interest, wherein each postrack trace has a constant spatial coordinates associated therewidth (fig 3 and pg 23-6, 4th and 5th paragraphs and pg 23-6, 5th paragraph); for each poststack trace, defining a time window around seismic data of interest (fig 2); plotting said window in plan view using the spatial coordinates associated with said window to generate a multidimensional plan view (fig 2D). However, Margrave et al does not specifically disclose defining a depth window. This is disclosed in Etgen in fig 8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to plot seismic data in a depth window because this gives explorationist information about the subsurface which allows them to make choices for drilling etc.. Also Margrave et al does not disclose wherein said multidimensional plan view utilizes at least four dimensions. This is disclosed in Clapp et al on page 2, 2nd paragraph. It would have been obvious to one of ordinary skill in the art at the time the invention was made display the poststack data in four dimensions because this adds dynamics to the visualization which makes for a more natural representation of the poststack data.

6. As per claims 6 and 9, Margrave et al does not specifically disclose analyzing trends in the data segments by viewing multiple segments in spatial relationship to one another. It would have been obvious to one of ordinary skill in the art at the time the invention was made to analyze the graphs of Margrave et al for trends because it was well known to analyze graphical data for trends to get useful information from graphs, therefore it would be obvious that the seismic data graphs would be analyzed for trends.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margrave et al in view of Etgen in view of Clapp et al as applied to claim 1 above, and further in view of Ervin (An object-oriented approach to landscape visualization).

5. As per claim 2, Margrave et al in view of Etgen in view of Clapp does not disclose overlaying the multidimensional plan view on a second seismic representation. This is disclosed in fig 2, page 2 in Ervin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to overlay plan maps over other seismic representations because this would give the reader more perspective (page 3, 4th paragraph).

6. As per claim 3, Margrave et al discloses wherein the seismic representation is a contour map (terrain, page 2).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Margrave et al in view Etgen in view of Clapp in view of Ervin as applied to claims 2-3 above, and further in view of Wille (Immersive environments enhance team collaboration).

8. As per claim 4, Margrave et al in view Etgen in view of Clapp in view of Ervin does not disclose inserting the multidimensional plan view into an immersive environment. This is disclosed in Wille on page 3, 3rd paragraph. It would have been obvious to one of ordinary skill in the art at the time the invention was made to put the multidimensional plan view in an immersive environment because this would create dramatic possibilities, which would increase productivity.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margrave et al in view of Clapp et al.

10. As per claim 7, Margrave et al discloses a method for viewing seismic data having a plurality of dimensions associated therewidth, said method comprising: presenting the seismic data in a

multidimensional plan view (fig 2D). However, Margrave et al does not disclose wherein said multidimensional plan view utilizes at least four dimensions. This is disclosed in Clapp et al on page 2, 2nd paragraph. It would have been obvious to one of ordinary skill in the art at the time the invention was made display the seismic data in four dimensions because this adds dynamics to the visualization which makes for a more natural representation of the seismic data.

11. As per claim 8, Clapp et al discloses wherein said at least four dimensions comprise an x-dimension, a y-dimension, a depth dimension and a fourth dimension for the seismic data and wherein said fourth dimension is based on another seismic attribute of the seismic data (page 2, 2nd paragraph).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Wallace whose telephone number is 703-605-5163. The examiner can normally be reached on Monday thru Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached on 703-305-9798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600